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DATE: Monday, January 24, 2005

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☐	L1	(mur or murc or mur-c).clm.	20
☐	L2	azzolina.in. or el-sherbeini.in. or elsherbeini.in.	29
☐	L3	L2 and pseudomonas	6

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Search Results - Record(s) 1 through 6 of 6 returned.

☐ 1. Document ID: WO 9961050 A1

Using default format because multiple data bases are involved.

L3: Entry 1 of 6 File: EPAB Dec 2, 1999

PUB-NO: WO009961050A1
DOCUMENT-IDENTIFIER: WO 9961050 A1
TITLE: MURD PROTEIN AND GENE OF PSEUDOMONAS AERUGINOSA

PUBN-DATE: December 2, 1999

INVENTOR-INFORMATION:

NAME	COUNTRY
EL-SHERBEINI, MOHAMED	US
AZZOLINA, BARBARA	US

INT-CL (IPC): A61 K 39/00; A61 K 39/02; A61 K 39/108; C07 H 21/02; C07 H 21/04; C12 N 15/00; C12 N 15/20; C12 P 21/06; C12 P 21/04
EUR-CL (EPC): C12N009/00

Full | Title | Citation | Front | Review | Classification | Date | Reference | ... | Claims | KWIC | Draw. D...

☐ 2. Document ID: WO 200125251 A1, EP 1222197 A1

L3: Entry 2 of 6 File: DWPI Apr 12, 2001

DERWENT-ACC-NO: 2001-308221
DERWENT-WEEK: 200254

TITLE: New MraY gene and enzyme of Pseudomonas aeruginosa, useful in vitro assays for screening antibacterial compounds that target cell wall biosynthesis, particularly for screening antibiotics against Pseudomonads

INVENTOR: AZZOLINA, B; EL-SHERBEINI, M

PRIORITY-DATA: 1999US-157580P (October 4, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 200125251 A1	April 12, 2001	E	022	C07H021/04
EP 1222197 A1	July 17, 2002	E	000	C07H021/04

INT-CL (IPC): C07 H 21/04; C12 N 15/00; C12 N 15/09; C12 P 21/06

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 3. Document ID: WO 200119979 A1

L3: Entry 3 of 6 File: DWPI Mar 22, 2001

DERWENT-ACC-NO: 2001-281522
DERWENT-WEEK: 200129
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TITLE: New Pseudomonas aeruginosa MurC enzyme involved in bacterial cell wall biosynthesis, useful for identifying inhibitors of enzyme which are active against both gram positive and gram negative bacteria

INVENTOR: AZZOLINA, B; EL-SHERBEINI, M

PRIORITY-DATA: 1999US-154073P (September 14, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 200119979 A1	March 22, 2001	E	039	C12N015/09

INT-CL (IPC): A61 K 31/70; C12 N 15/09

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 4. Document ID: WO 200119843 A1

L3: Entry 4 of 6 File: DWPI Mar 22, 2001

DERWENT-ACC-NO: 2001-257872
DERWENT-WEEK: 200126
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TITLE: Novel purified and isolated Pseudomonas aeruginosa MurE polypeptide useful in in assays to identify compounds that modulate activity of the polypeptide and for generation of antibodies against the polypeptide

INVENTOR: AZZOLINA, B; EL-SHERBEINI, M

PRIORITY-DATA: 1999US-154117P (September 15, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 200119843 A1	March 22, 2001	E	041	C07H021/04

INT-CL (IPC): C07 H 21/04; C12 N 15/00; C12 N 15/09; C12 P 21/06

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 5. Document ID: WO 200118018 A1

L3: Entry 5 of 6 File: DWPI Mar 15, 2001

DERWENT-ACC-NO: 2001-244554
DERWENT-WEEK: 200125
COPYRIGHT 2005 DERWENT INFORMATION LTD
TITLE: New Pseudomonas aeruginosa MurF polypeptide useful in assays to identify compounds that modulate activity of the polypeptide and for generation of antibodies against the polypeptide

INVENTOR: AZZOLINA, B; EL-SHERBEINI, M

PRIORITY-DATA: 1999US-153293P (September 10, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 200118018 A1	March 15, 2001	E	040	C07H021/02

INT-CL (IPC): C07 H 21/02; C07 H 21/04; C12 N 1/14; C12 N 1/16; C12 N 1/18; C12 N 1/20; C12 N 5/00; C12 N 5/04; C12 N 5/10; C12 N 9/00; C12 N 15/00; C12 N 15/09; C12 N 15/63; C12 N 15/70; C12 N 15/74; G01 N 33/53

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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☐ 6. Document ID: WO 9961050 A1, JP 2002516076 W, EP 1079855 A1

L3: Entry 6 of 6 File: DWPI Dec 2, 1999

DERWENT-ACC-NO: 2000-072548
DERWENT-WEEK: 200239
COPYRIGHT 2005 DERWENT INFORMATION LTD
TITLE: New nucleic acid encoding the MurD protein of Pseudomonas aeruginosa, used to identify specific inhibitors

INVENTOR: AZZOLINA, B; EL-SHERBEINI, M

PRIORITY-DATA: 1998US-087308P (May 29, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 9961050 A1	December 2, 1999	E	035	A61K039/00
JP 2002516076 W	June 4, 2002		040	C12N015/09
EP 1079855 A1	March 7, 2001	E	000	A61K039/00

INT-CL (IPC): A61 K 38/00; A61 K 39/00; A61 K 39/02; A61 K 39/108; A61 K 45/00; A61 P 31/04; C07 H 21/02; C07 H 21/04; C12 N 15/00; C12 N 15/09; C12 N 15/20; C12 P 21/04; C12 P 21/06

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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L1: Entry 2 of 20 File: PGPB Mar 18, 2004

DOCUMENT-IDENTIFIER: US 20040052799 A1
TITLE: Nucleic acid and amino acid sequences relating to Helicobacter pylori for diagnostics and therapeutics

CLAIMS:

182. An isolated nucleic acid comprising a nucleotide sequence encoding an H. pylori pylori murC polypeptide or a fragment thereof, said nucleic acid comprising the nucleotide sequence of SEQ ID NO: 2845.

188. A purified H. pylori murC polypeptide or a fragment thereof, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO: 7607.

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L1: Entry 2 of 20 File: PGPB Mar 18, 2004

PGPUB-DOCUMENT-NUMBER: 20040052799
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040052799 A1

TITLE: Nucleic acid and amino acid sequences relating to Helicobacter pylori for diagnostics and therapeutics

PUBLICATION-DATE: March 18, 2004

INT-CL: [07] A61 K 39/00, A61 K 39/38
US-CL-PUBLISHED: 424/184.1
US-CL-CURRENT: 424/184.1

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L1: Entry 3 of 20 File: PGPB Feb 12, 2004

DOCUMENT-IDENTIFIER: US 20040028702 A1
TITLE: Muramic acid derivative compounds

CLAIMS:

8. A library of compounds prepared by the method of claim 7 for screening for inhibiting Mur enzymes.

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L1: Entry 3 of 20 File: PGPB Feb 12, 2004

PGPUB-DOCUMENT-NUMBER: 20040028702
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040028702 A1

TITLE: Muramic acid derivative compounds

PUBLICATION-DATE: February 12, 2004

INT-CL: [07] A61 K 39/02, C08 B 37/00, A61 K 31/739
US-CL-PUBLISHED: 424/234.1; 514/54, 536/53
US-CL-CURRENT: 424/234.1; 514/54, 536/53

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L1: Entry 10 of 20 File: PGPB Feb 7, 2002

PGPUB-DOCUMENT-NUMBER: 20020015678
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020015678 A1

TITLE: DIRECT ADSORPTION SCINTILLATION ASSAY FOR MEASURING ENZYME ACTIVITY AND ASSAYING BIOCHEMICAL PROCESSES

PUBLICATION-DATE: February 7, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
YUAN, ZHENGYU	FREMONT	CA	US	
CHEN, ZHONG-XIAO	BELMONT	CA	US	

US-CL-CURRENT: 424/1.11; 422/102, 435/4, 435/7.1, 435/7.2, 436/501, 436/518, 436/537

CLAIMS:

What is claimed is:

1) A method for analyzing a sample comprising: a) providing a sample containing one or more molecular species, wherein at least one of the molecular species is capable of stimulating scintillation; b) providing a scintillating material, wherein the surface of the scintillating material adsorbs at least one of the molecular species via a general molecular property-based binding interaction between the molecular species and the scintillating material, and where the scintillating material can be stimulated to scintillate by at least one of the adsorbed molecular species, but is generally not stimulated to scintillate by any molecular species which is not adsorbed; c) measuring the scintillation emitted by the scintillating material.

2) The method of claim 1, wherein the number of molecular species provided is at least two, and where at least one of said molecular species has a presence of, an absence of, or a degree of general molecular property-based binding interaction with the scintillating material distinct from the remainder of the molecular species.

3) The method of claim 1, wherein the general molecular property-based binding interaction is selected from the group consisting of charge-charge interactions, dipole-charge interactions, dipole-dipole interactions and hydrophobic interactions.

4) The method of claim 2, wherein the presence of, the absence of, or the degree of general molecular property-based binding interaction with the scintillating material is due to a chemical or biochemical transformation of one of said molecular species into another of said molecular species, further comprising the step of determining the progress of or degree of completion of the molecular transformation.

5) The method of claim 1, wherein the scintillating material is selected from the group consisting of scintillating plastics and scintillating glasses.

6) The method of claim 1, wherein the scintillating material is a plastic doped with with a scintillant.

7) The method of claim 5, wherein the scintillating plastic is selected from the group consisting of polystyrene doped with at least one scintillating fluor and polyvinyltoluene doped with at least one scintillating fluor.

8) The method of claim 2, wherein at least one of the at least two molecular species species provided is a substrate for an enzyme-catalyzed reaction or a series of enzyme-catalyzed reactions, another of the at least two molecular species is a product of the enzyme-catalyzed reaction or series of enzyme-catalyzed reactions and and has a presence of, absence of, or degree of general molecular property-based binding affinity for the scintillating material distinct from that of the substrate, substrate, and where the difference in general molecular property-based binding affinity is a result of the enzyme-catalyzed reaction or series of enzyme-catalyzed reactions.

9) The method of claim 8, wherein the general molecular property-based binding affinity is due to the presence of positive charge, the absence of positive charge, the presence of negative charge, the absence of negative charge, the presence of a dipole moment, the absence of a dipole moment, the presence of hydrophobicity, or the absence of hydrophobicity.

10) The method of claim 8, wherein the enzyme catalyzed reaction is selected from the group consisting of kinase catalyzed reactions, lipase catalyzed reactions, phosphatase catalyzed reactions, protease catalyzed reactions, and tRNA transferase catalyzed reactions.

11) The method of claim 8, wherein the enzyme catalyzed reaction is selected from the group consisting of the reaction cascade or any portion thereof for the sequential synthesis of uridinediphosphate-N-acetylmurami- c acid pentapeptide catalyzed by the enzymes MurA, MurB, MurC, MurD, MurE, and MurF.

12) The method of claim 8, wherein the enzyme catalyzed reaction is that catalyzed by MurA.

13) The method of claim 8, wherein the enzyme catalyzed reaction is that catalyzed by MurB.

14) The method of claim 8, wherein the enzyme catalyzed reaction is that catalyzed by MurC.

15) The method of claim 8, wherein the enzyme catalyzed reaction is that catalyzed by MurD.

16) The method of claim 8, wherein the enzyme catalyzed reaction is that catalyzed by MurE.

17) The method of claim 8, wherein the enzyme catalyzed reaction is that catalyzed by MurF.

18) The method of claim 8, wherein the enzyme catalyzed reaction is the reaction cascade for the sequential synthesis of uridinediphosphate-N-ace- tylmuramic acid pentapeptide catalyzed by the enzymes MurA, MurB, MurC, MurD, MurE, and MurF.

19) The method of claim 4, further comprising performing the method on a plurality of samples to effect a high throughput screen.

20) The method of claim 19, wherein the high throughput screen is used to identify compounds which inhibit an enzyme catalyzed reaction selected from the group consisting of the reaction cascade or any portion thereof for the sequential synthesis of uridinediphosphate-N-acetylmuramic acid pentapeptide catalyzed by the enzymes MurA, MurB, MurC, MurD, MurE, and MurF; kinase catalyzed reactions, lipase catalyzed reactions, phosphatase catalyzed reactions, protease catalyzed reactions, and tRNA transferase catalyzed reactions

21) A plate suitable for a direct adsorption binding assay, said plate comprised of a scintillating material and having one or more wells.

22) A plate suitable for a direct adsorption binding assay, said plate comprising wells coated with a scintillant material.

23) The plate of claim 21, wherein said wells are derivatized such that the walls of the wells are positively charged.

24) The plate of claim 21, wherein said wells are derivatized such that the walls of the wells are negatively charged.

25) The plate of claim 21, wherein said wells are derivatized such that the walls of the wells are hydrophobic.

26) The plate of claim 23, wherein the walls of the wells are derivatized with methyltrioctylammonium bromide.

27) The plate of claim 24, wherein the walls of the wells are derivatized with octadecyl sulfate.

28) The plate of claim 25, where the walls of the wells are derivatized with polylysine-N.sup.68-palmitate.

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L1: Entry 14 of 20 File: USPT Apr 6, 1999

US-PAT-NO: 5891621
DOCUMENT-IDENTIFIER: US 5891621 A

TITLE: Metabolic pathway assay

DATE-ISSUED: April 6, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Chabin; Renee M.	Neptune	NJ		
Kuo; David W.	Princeton	NJ		
O'Connell; John F.	Cranbury	NJ		
Pompliano; David L.	Lawrenceville	NJ		
Wong; Kenny K.	Edison	NJ		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Merck & Co., Inc.	Rahway	NJ			02

APPL-NO: 08/ 936646 [PALM]
DATE FILED: September 24, 1997

INT-CL: [06] C12 Q 1/00, C12 Q 1/37, C12 Q 1/18, C12 Q 1/48

US-CL-ISSUED: 435/4; 435/23, 435/24, 435/32, 435/15, 435/21, 435/7.91, 435/18, 435/16
US-CL-CURRENT: 435/4; 435/15, 435/16, 435/18, 435/21, 435/23, 435/24, 435/32, 435/7.91

FIELD-OF-SEARCH: 435/4, 435/16, 435/23, 435/24, 435/32, 435/15, 435/21, 435/7.91, 435/18

PRIOR-ART-DISCLOSED:

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ART-UNIT: 163

PRIMARY-EXAMINER: Leary; Louise N.

ATTY-AGENT-FIRM: Fitch; Catherine D. Winokur; Melvin

ABSTRACT:

An in vitro screening assay which identifies enzyme inhibitors and allows for the simultaneous assay of many enzymes. Enzyme, substrate, co-factor, etc. concentrations are optimized so that inhibitors of any one of the enzymes in the pathway are equally likely to be detected. Necessarily, the flux of substrate through each enzyme should be nearly the same during the assay, i.e., each of the enzyme catalyzed steps must be equally rate-limiting. Preferably, optimal assay conditions are predicted by computer modeling. Further, the pathway conditions are optimized through variation of enzyme, starting substrate, co-substrate and co-factor concentrations. A positive response is initially detected as a change in the amount of the product generated at the end of the enzyme cascade as compared to a standard. A sample producing a positive result can be deconvoluted.

37 Claims, 2 Drawing figures

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L1: Entry 14 of 20 File: USPT Apr 6, 1999

US-PAT-NO: 5891621
DOCUMENT-IDENTIFIER: US 5891621 A

TITLE: Metabolic pathway assay

DATE-ISSUED: April 6, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Chabin; Renee M.	Neptune	NJ		
Kuo; David W.	Princeton	NJ		
O'Connell; John F.	Cranbury	NJ		
Pompliano; David L.	Lawrenceville	NJ		
Wong; Kenny K.	Edison	NJ		

US-CL-CURRENT: 435/4; 435/15, 435/16, 435/18, 435/21, 435/23, 435/24, 435/32, 435/7.91

CLAIMS:

What is claimed is:

1. A kit which is comprised of an enzyme cascade comprising a first enzyme, a second enzyme and a substrate for the first enzyme.

2. The kit according to claim 1 wherein the first enzyme is suitable for changing the substrate for the first enzyme into a substrate for the second enzyme, and the second enzyme is suitable for changing the substrate for the second enzyme into a product of the second enzyme.

3. The kit according to claim 1 wherein the concentration of each component in the cascade is optimized to maintain uniform flux of substrate through the cascade.

4. The kit according to claim 1 additionally comprising one or more co-substrates for the first and second enzymes.

5. The kit according to claim 4 wherein the first enzyme is suitable for changing the substrate for the first enzyme into a substrate for the second enzyme, and the second enzyme is suitable for changing the substrate for the second enzyme into a product of the second enzyme.

6. The kit according to claim 5 wherein the concentration of each component in the cascade is optimized to maintain uniform flux of substrate through the cascade.

7. The kit according to claim 4 additionally comprising a third enzyme, a fourth enzyme, and one or more co-substrates for the third and fourth enzymes.

8. The kit according to claim 7 wherein the first enzyme is suitable for changing the substrate for the first enzyme into a substrate for the second enzyme; the second enzyme is suitable for changing the substrate for the second second enzyme into a substrate for the third enzyme; the third enzyme is suitable for changing the substrate for the third enzyme into a substrate for the fourth enzyme; and the fourth enzyme is suitable for changing the substrate substrate for the fourth enzyme into a product of the fourth enzyme.

9. The kit according to claim 8 wherein the concentration of each enzyme in the the cascade is optimized to maintain uniform flux of substrate through the cascade.

10. The kit according to claim 9 wherein the first enzyme is the gene product of murC, the second enzyme is the gene product of murD, the third enzyme is the the gene product of murE, and the fourth enzyme is the gene product of murF.

11. The kit according to claim 10 wherein

the substrate for the first enzyme is uridyl-5'-diphosphate N-acetyl muramic acid;

the co-substrates for the first enzyme are L-alanine and adenosine 5'-triphosphate;

the substrate for the second enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-alanine;

the co-substrates for the second enzyme are D-glutamic acid, and adenosine 5'-triphosphate;

the substrate for the third enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-L-alanyl-.gamma.-D-glutamic acid;

the co-substrates for the third enzyme are meso-diaminopimelic acid and adenosine 5'-triphosphate;

the substrate for the fourth enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-alanyl-.gamma.-D-glutamyl-meso-dipimelic acid; and

the co-substrates for the fourth enzyme are D-alanyl-D-alanine and adenosine 5'-triphosphate.

12. The kit according to claim 7 additionally comprising a fifth enzyme, a sixth enzyme, and one or more co-substrates for the fifth and sixth enzymes.

13. The kit assay according to claim 12 wherein the first enzyme is suitable for changing the substrate for the first enzyme into a substrate for the second second enzyme; the second enzyme is suitable for changing the substrate for the the second enzyme into a substrate for the third enzyme; the third enzyme is suitable for changing the substrate for the third enzyme into a substrate for the fourth enzyme; the fourth enzyme is suitable for changing the substrate for for the fourth enzyme into a substrate for the fifth enzyme; the fifth enzyme

is suitable for changing the substrate for the fifth enzyme into a substrate for the sixth enzyme; and the sixth enzyme is suitable for changing the substrate for the sixth enzyme into a product of the sixth enzyme.

14. The kit according to claim 13 wherein the concentration of each enzyme in the cascade is optimized to maintain uniform flux of substrate through the cascade.

15. The kit according to claim 14 wherein the first enzyme is the gene product of murA, the second enzyme is the gene product of murB, the third enzyme is the the gene product of murC, the fourth enzyme is the gene product of murD, the fifth enzyme is the gene product of MurE, and the sixth enzyme is the product of MurF.

16. The kit according to claim 15 wherein

the substrate for the first enzyme is uridyl-5'-diphosphate-N-acetyl-glucosamine;

the co-substrate for the first enzyme is phosphoenolpyruvate;

the substrate for the second enzyme is uridyl-5'-diphosphate-N-acetyl-enolpyruvylglucosamine;

the co-substrates for the second enzyme are nicotinamide adenine dinucleotide phosphate reduced form and flavin adenine dinucleotide;

the substrate for the third enzyme is uridyl-5'-diphosphate N-acetyl muramic acid;

the co-substrates for the third enzyme are L-alanine and adenosine 5'-triphosphate;

the substrate for the fourth enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-alanine;

the co-substrates for the fourth enzyme are D-glutamic acid, and adenosine 5'-triphosphate;

the substrate for the fifth enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-L-alanyl-.gamma.-D-glutamic acid;

the co-substrates for the fifth enzyme are meso-diaminopimelic acid and adenosine 5'-triphosphate;

the substrate for the sixth enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-L-alanyl-.gamma.-D-glutamyl-meso-dipimelic acid; and

the co-substrates for the sixth enzyme are D-alanyl-D-alanine and adenosine 5'-5'-triphosphate.

17. A method of screening for a biologically active compound which comprises:

combining an enzyme cascade, comprising a first enzyme, a second enzyme and a substrate for the first enzyme, with a compound suspected of having biological

activity; and

measuring the concentration of the products of the enzymes and comparing to a standard.

18. The method according to claim 17 wherein the concentrations of products are are measured by radio-labeled HPLC.

19. The method according to claim 17 wherein the first enzyme is suitable for changing the substrate for the first enzyme into a substrate for the second enzyme, and the second enzyme is suitable for changing the substrate for the second enzyme into a product of the second enzyme.

20. The method according to claim 19 wherein the concentration of each enzyme in the cascade is optimized to maintain uniform flux of substrate through the cascade.

21. The method according to claim 17 wherein the enzyme cascade additionally comprises one or more co-substrates for the first and second enzymes.

22. The method according to claim 21 wherein the concentrations of products are are measured by radio-labeled HPLC.

23. The method according to claim 21 wherein the first enzyme is suitable for changing the substrate for the first enzyme into a substrate for the second enzyme, and the second enzyme is suitable for changing the substrate for the second enzyme into a product of the second enzyme.

24. The method according to claim 23 wherein the concentration of each enzyme in the cascade is optimized to maintain uniform flux of substrate through the cascade.

25. The method according to claim 21 wherein the enzyme cascade additionally comprises a third enzyme, a fourth enzyme and one or more co-substrates for the the third and fourth enzymes.

26. The method according to claim 25 wherein the concentrations of products are are measured by radio-labeled HPLC.

27. The method according to claim 25 wherein the first enzyme is suitable for changing the substrate for the first enzyme into a substrate for the second enzyme; the second enzyme is suitable for changing the substrate for the second second enzyme into a substrate for the third enzyme; the third enzyme is suitable for changing the substrate for the third enzyme into a substrate for the fourth enzyme; and the fourth enzyme is suitable for changing the substrate substrate for the fourth enzyme into a product of the fourth enzyme.

28. The method according to claim 27 wherein the concentration of each enzyme in the cascade is optimized to maintain uniform flux of substrate through the cascade.

29. The method according to claim 28 wherein the first enzyme is the gene product of murC, the second enzyme is the gene product of murD, the third enzyme is the gene product of murE, and the fourth enzyme is the gene product of murF.

30. The method according to claim 29 wherein

the substrate for the first enzyme is uridyl-5'-diphosphate N-acetyl muramic acid;

the co-substrates for the first enzyme are L-alanine and adenosine 5'-triphosphate;

the substrate for the second enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-alanine;

the co-substrates for the second enzyme are D-glutamic acid, and adenosine 5'-triphosphate;

the substrate for the third enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-L-alanyl-.gamma.-D-glutamic acid;

the co-substrates for the third enzyme are meso-diaminopimelic acid and adenosine 5'-triphosphate;

the substrate for the fourth enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-alanyl-.gamma.-D-glutamyl-meso-dipimelic acid; and

the co-substrates for the fourth enzyme are D-alanyl-D-alanine and adenosine 5'-triphosphate.

31. The method according to claim 25 wherein the enzyme cascade additionally comprises a fifth enzyme, a sixth enzyme, and one or more co-substrates for the the fifth and sixth enzymes.

32. The method according to claim 31 wherein the concentrations of products are are measured by radio-labeled HPLC.

33. The method according to claim 31 wherein the first enzyme is suitable for changing the substrate for the first enzyme into a substrate for the second enzyme; the second enzyme is suitable for changing the substrate for the second second enzyme into a substrate for the third enzyme; the third enzyme is suitable for changing the substrate for the third enzyme into a substrate for the fourth enzyme; the fourth enzyme is suitable for changing the substrate for for the fourth enzyme into a substrate for the fifth enzyme; the fifth enzyme is suitable for changing the substrate for the fifth enzyme into a substrate for the sixth enzyme; and the sixth enzyme is suitable for changing the substrate for the sixth enzyme into a product of the sixth enzyme.

34. The method according to claim 33 wherein the concentration of each enzyme in the cascade is optimized to maintain uniform flux of substrate through the cascade.

35. The method according to claim 34 wherein the first enzyme is the gene product of murA, the second enzyme is the gene product of murB, the third enzyme is the gene product of murC, the fourth enzyme is the gene product of murD, the fifth enzyme is the gene product of murE, and the sixth enzyme is the product of murF.

36. The method according to claim 35 wherein

the substrate for the first enzyme is uridyl-5'-diphosphate-N-acetyl-glucosamine;

the co-substrate for the first enzyme is phosphoenolpyruvate;

the substrate for the second enzyme is uridyl-5'-diphosphate-N-acetyl-enolpyruvylglucosamine;

the co-substrates for the second enzyme are nicotinamide adenine dinucleotide phosphate reduced form and flavin adenine dinucleotide;

the substrate for the third enzyme is uridyl-5'-diphosphate N-acetyl muramic acid;

the co-substrates for the third enzyme are L-alanine and adenosine 5'-triphosphate;

the substrate for the fourth enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-alanine;

the co-substrates for the fourth enzyme are D-glutamic acid, and adenosine 5'-triphosphate;

the substrate for the fifth enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-L-alanyl-.gamma.-D-glutamic acid;

the co-substrates for the fifth enzyme are meso-diaminopimelic acid and adenosine 5'-triphosphate;

the substrate for the sixth enzyme is uridyl-5'-diphosphate N-acetyl muramyl-L-L-alanyl-.gamma.-D-glutamyl-meso-dipimelic acid; and

the co-substrates for the sixth enzyme are D-alanyl-D-alanine and adenosine 5'-5'-triphosphate.

37. A high-throughput in vitro screening method for detecting a biologically active compound which is comprised of:

(a) combining an enzyme cascade comprising a first enzyme, a second enzyme, a third enzyme, a fourth enzyme, a fifth enzyme and a sixth enzyme, and a labeled labeled substrate for the first enzyme with a compound suspected of having biological activity; wherein:

the first enzyme is the gene product of murA, the second enzyme is the gene product of murB, the third enzyme is the gene product of murC, the fourth enzyme is the gene product of murD, the fifth enzyme is the gene product of murE, and the sixth enzyme is the product of murF; and

(b) measuring the concentrations of the products of the enzymes and comparing to a standard, by absorbing the product of the sixth enzyme onto resin and detecting the amount of label and comparing the amount of label to control.

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Search Results - Record(s) 1 through 15 of 15 returned.

☐ 1. 6838255. 23 Jun 98; 04 Jan 05. MurC. Burnham; Martin Karl Russell, et al. 435/69.1; 435/252.3 435/252.33 435/320.1 536/23.7. C12P021/02.

☐ 2. 6534278. 03 Mar 00; 18 Mar 03. Screening for antibiotics. Rothstein; David M.. 435/7.2; 435/18 435/183 435/19 435/24 435/243 435/32 435/471 435/6 435/69.1 435/69.8 435/7.1 435/7.32 435/7.4 536/24.3 536/24.32. G01N033/53.

☐ 3. 6310193. 30 Sep 97; 30 Oct 01. MurC from Streptococcus pneumoniae. Black; Michael Terence, et al. 536/23.5; 435/252.3 435/252.33 435/320.1 435/325 435/362 435/365 435/367 435/69.3 536/23.6 536/23.7. C07H021/04 C12N015/09 C12N005/00 C12N001/20.

☐ 4. 6267968. 29 Apr 99; 31 Jul 01. MDP derivatives and conjugates having haematipoietic function stimulating activity, and compositions containing same. Bahr; Georges, et al. 424/279.1; 514/19 514/8 530/300. A61K037/02 C07C103/52.

☐ 5. 6228627. 08 Jul 99; 08 May 01. Mur A-1 from Streptococcus pneumoniae. Wallis; Nicola Gail. 435/193; 424/190.1 424/192.1. C12N009/00 A61K039/00.

☐ 6. 6228612. 01 Jul 97; 08 May 01. Compounds. Wallis; Nicola Gail. 435/69.1; 435/193 435/252.3 435/254.11 435/320.1 435/325 435/70.1 435/71.1 435/71.2 536/23.2. C12P021/06 C12N015/00 C07H021/04.

☐ 7. 6143868. 09 Apr 98; 07 Nov 00. Monofunctional glycosyltransferase of Staphylococcus aureus. Hoskins; Jo Ann, et al. 530/350; 435/183 435/188 435/30 435/36 435/7.1 435/7.33 530/820 530/825. C07K001/00 C07K014/00 C07K017/00 G01N033/53 G01N033/569.

☐ 8. 6030996. 11 Mar 98; 29 Feb 00. Mur D inhibiting compounds, compositions containing such compounds and methods of use. Gegnas; Laura D.. 514/459; 514/460 549/216 549/217 549/218 549/219 549/417 549/418 549/419 549/420. H01N043/16 C07F009/28 C07D315/06.

☐ 9. 5770415. 17 Mar 97; 23 Jun 98. Peptidoglycan biosynthetic gene mur a from Strepococcus pneumoniae. Skatrud; Paul L., et al. 435/488; 435/193 435/243 435/252.3 435/320.1 435/325 536/23.2. C12N015/00 C12N009/10 C12N005/00 C07H021/04.

☐ 10. 4461761. 23 Aug 82; 24 Jul 84. Oligomers of compounds of the muramyl-peptide type and medicaments containing them. Lefrancier; Pierre, et al. 514/8; 530/322 930/20 930/21 930/DIG.500. A61K037/00 C07C103/52.

☐ 11. 4327085. 31 Mar 80; 27 Apr 82. Biologically active compositions and methods of use. Audibert; Francoise, et al. 514/8; 930/20 930/21 930/DIG.500 930/DIG.782. A61K037/00.

☐ 12. 4323559. 31 Mar 80; 06 Apr 82. Compounds derived from N-acetyl-nor-muramyl-L-alanyl-D-isoglutamic acid and other compounds and biologically active compositions containing such compounds. Audibert; Francoise, et al. 514/8; 530/322 536/53 930/190 930/21 930/DIG.500 930/DIG.782. A61K037/00 C07C103/52.

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☐ 14. 4186194. 22 Oct 74; 29 Jan 80. Water soluble agents effective as immunological adjuvants for stimulating, in the host the immune response to various antigens and compositions, notably vaccines containing said water soluble agents. Adam; Arlette, et al. 424/204.1; 424/130.1 424/234.1 424/282.1 514/8 530/322 536/53 930/20 930/200 930/21 930/220 930/270 930/DIG.500 930/DIG.782. A61K039/12 C07C103/52 A61K039/02 A61K037/00.

☐ 15. 4153684. 07 Mar 77; 08 May 79. Immunizing and anti-infectious adjuvant agents constituted by N-acetyl-muramyl-L-alanyl-D-glutamic acid derivatives. Audibert; Francoise, et al. 424/279.1; 514/8 530/322 536/53. A61K037/02 C07C103/52.

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Terms	Documents
(mur or murc or mur-c).ti,ab,clm. not L1 not L3	15

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DATE: Monday, January 24, 2005

Hide?	Set Name	Query	Hit Count
		DB=USPT; PLUR=YES; OP=AND	
☐	L1	UDP-N-acetylmuramoyl-L-alanine synthetase	1
☐	L2	UDP-N-acetylmuramoyl-L-alanine synthase	0
☐	L3	UDP-N-acetylmuramoyl	2
☐	L4	(mur or murc or mur-c).ti,ab,clm. not l1 not l3	15

END OF SEARCH HISTORY

Search in Swiss-Prot and TrEMBL for: murc pseudomonas

Swiss-Prot Release 45.5 of 04-Jan-2005
TrEMBL Release 28.5 of 04-Jan-2005

- Number of sequences found in Swiss-Prot(5) and TrEMBL(2): 7
- Note that the selected sequences can be saved to a file to be later retrieved; to do so, go to the bottom of this page.
- For more directed searches, you can use the Sequence Retrieval System SRS.

Search in Swiss-Prot: There are matches to 5 out of 167089 entries

MURC_PSEAE (**Q9HW02**)
UDP-N-acetylmuramate--L-alanine ligase (EC 6.3.2.8) (UDP-N-acetylmuramoyl-L-alanine synthetase). {GENE: Name=murC; OrderedLocusNames=PA4411} - Pseudomonas aeruginosa

MURC_PSEPK (**Q88N75**)
UDP-N-acetylmuramate--L-alanine ligase (EC 6.3.2.8) (UDP-N-acetylmuramoyl-L-alanine synthetase). {GENE: Name=murC; OrderedLocusNames=PP1338} - Pseudomonas putida (strain KT2440)

MURC_PSESM (**Q87WY6**)
UDP-N-acetylmuramate--L-alanine ligase (EC 6.3.2.8) (UDP-N-acetylmuramoyl-L-alanine synthetase). {GENE: Name=murC; OrderedLocusNames=PSPTO4407} - Pseudomonas syringae (pv. tomato)

MURC_RALSO (**Q8XVI8**)
UDP-N-acetylmuramate--L-alanine ligase (EC 6.3.2.8) (UDP-N-acetylmuramoyl-L-alanine synthetase). {GENE: Name=murC; OrderedLocusNames=RSc2843; ORFNames=RS00262} - Ralstonia solanacearum (Pseudomonas solanacearum)

MURC_RHOPA (**P61682**)
UDP-N-acetylmuramate--L-alanine ligase (EC 6.3.2.8) (UDP-N-acetylmuramoyl-L-alanine synthetase). {GENE: Name=murC; OrderedLocusNames=RPA3529} - Rhodopseudomonas palustris

Search in TrEMBL: There are matches to 2 out of 1560235 entries

Q62GS8
UDP-N-acetylmuramate--alanine ligase (EC 6.3.2.8) {GENE:Name=murC; OrderedLocusNames=BMA2550} - Burkholderia mallei (Pseudomonas mallei)
Q63QJ8
UDP-N-acetylmuramate--alanine ligase (EC 6.3.2.8) {GENE:Name=murC; OrderedLocusNames=BPSL3024} - Burkholderia pseudomallei (Pseudomonas pseudomallei)

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Format: ◉ Swiss-Prot ○ Fasta

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CLUSTAL W (1.74) multiple sequence alignment


sp|Q88N75|MURC_PSEPK      MVESQK-----AMPQ---PKMGRIRRIHFVGIGGVGMCGIAEVLLNLGYEVSGSDLKAS
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sp|P65470|MURC_ECOL6      -MNTQQ----LAKLRSIVPEMRRVRHIHFVGIGGAGMGGIAEVLANEGYQISGSDLAPN
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tr|Q5PDC7                 MRFRHGIAIAGTHGKTTTTAMVSSIYAEAGLDPTFVNGGLVKAAGVHARLGHSRYLIAE
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tr|Q5PDC7                 IRELLPRVGRQTTTYGFSEDADVRVEDYQQIGPQGHFTLLRQGMPDLHVTLNAPGRHNA
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PileUp

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Name: sp|P57818|MURC_PASMU oo Len: 499 Check: 7227 Weight: 0.100

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sp|P57818|MURC_PASMU      QVITYGFSEK ADYRIEDYQQ TGFQGHYTVI TPSGERIDVL LNVPGRHNAL

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sp|Q88N75|MURC_PSEPK      LAPLVKPLLR AGDILLCQGA GDVGGLAPQL MKSPLFAGAK QEKSK....
sp|Q87WY6|MURC_PSESM      LAPLVKPLLR AGDILLCQGA GDIAGLAPRL LNSPLFVGAK VASTEGKLK
sp|P65470|MURC_ECOL6      VAEMLAPVLT GNDLILVQGA GNIGKIARSL AEIKLKPQTP EEEQHD...
tr|Q5PDC7                 VATMLAPVLT GNDLILVQGA GNVGKIARYL SEIKLKPQIQ EEEQHG...
sp|P57818|MURC_PASMU      LGEILDQVLQ DGDLILAQGA GNVSKIARQL AETWTKE... .........
```

```
CLUSTAL W (1.74) multiple sequence alignment


tr|Q63QJ8                ----------MKHIVKHIHFVGIGGAGMSGIAEVLVNLGYQVSGSDLARNAVTERLEAL
tr|Q62GS8                ----------MKHIVKHIHFVGIGGAGMSGIAEVLVNLGYQVSGSDLARNAVTERLEAL
sp|Q9HW02|MURC_PSEAE     MVKEPNGVTRTMRRIRRIHFVGIGGAGMCGIAEVLLNLGYEVSGSDLKASAVTERLEKF
                                    : :::***********.******:****:******  .******* :

tr|Q63QJ8                ARVSIGHDAANIEGANAVVVSTAVRSDNPEVLAARRLRVPIVPRAVMLAELMRLKQGIA
tr|Q62GS8                ARVSIGHDAANIEGANAVVVSTAVRSDNPEVLAARRLRVPIVPRAVMLAELMRLKQGIA
sp|Q9HW02|MURC_PSEAE     AQIFIGHQAENADGADVLVVSSAINRANPEVASALERRIPVVPRAEMLAELMRYRHGIA
                         *:: ***:* * :**:.:***:*:.  **** :* . *:*:**** ******* ::***

tr|Q63QJ8                AGTHGKTTTTSLVASVLAAGGLDPTFVIGGRLTSAGANARLGTGDFIVAEADESDASFL
tr|Q62GS8                AGTHGKTTTTSLVASVLAAGGLDPTFVIGGRLTSAGANARLGMGDFIVAEADESDASFL
sp|Q9HW02|MURC_PSEAE     AGTHGKTTTTSLIASVFAAGGLDPTFVIGGRLNAAGTNAQLGASRYLVAEADESDASFL
                         ************:***:***************.:**:**:** . ::************

tr|Q63QJ8                LYPVIEVITNIDADHMDTYGHDFARLKQAFIEFTQRLPFYGSAVVCIDDANVRQIVPLI
tr|Q62GS8                LYPVIEVITNIDADHMDTYGHDFARLKQAFIEFTQRLPFYGSAVVCIDDANVRQIVPLI
sp|Q9HW02|MURC_PSEAE     LQPMVAVVTNIDADHMATYGGDFNKLKKTFVEFLHNLPFYGLAVMCVDDPVVREILPQI
                         * *:: *:******** *** ** :**::*:** :.***** **:*:**. **:*:* *

tr|Q63QJ8                KPVVRYGFAADAQVRAENVEARDGRMHFTVRREGREPLPVVLNLPGLHNVQNALAAIAI
tr|Q62GS8                KPVVRYGFAADAQVRAENVEARDGRMHFTVRREGREPLPVVLNLPGLHNVQNALAAIAI
sp|Q9HW02|MURC_PSEAE     RPTVTYGLSEDADVRAINIRQEGMRTWFTVLRPEREPLDVSVNMPGLHNVLNSLATIVI
                         :*.* **:: **:*** *:. .. *  *** *  **** * :*:****** *:**:*.*

tr|Q63QJ8                TDLDVADAAIQQALAEFNGVGRRFQRYGEIAAAGGGAYTLIDDYGHHPVEMAATIAAAR
tr|Q62GS8                TDLDVADAAIQQALAEFNGVGRRFQRYGEIAAAGGGAYTLIDDYGHHPVEMAATIAAAR
sp|Q9HW02|MURC_PSEAE     TDEGISDEAIVQGLSGFQGVGRRFQVYGELQVEGG-SVMLVDDYGHHPREVAAVIKAIR
                         ** .::* ** *.*: *:******* ***: . ** :  *:******* *:**.* * *

tr|Q63QJ8                AFPGRRLVLAFQPHRYTRTRDCFDDFVNVLSTVDALVLTEVYAAGEAPISTANGDALSR
tr|Q62GS8                AFPGRRLVLAFQPHRYTRTRDCFDDFVNVLSTVDALVLTEVYAAGEAPISTANGDALSR
sp|Q9HW02|MURC_PSEAE     GWPERRLVMVYQPHRYTRTRDLYEDFVQVLGEANVLLLMEVYPAGEEPIPGADSRQLCH
                         .:* ****:.:********** ::***:**. .:.*:* ***.*** **. *:.  *.:

tr|Q63QJ8                LRAAGKVEPVFVATVDEVPDALAKLARDGDVVITMGAGSIGGVPGKLAQDTQQKG----
tr|Q62GS8                LRAAGKVEPVFVATVDEVPDALAKLARDGDVVITMGAGSIGGVPGKLAQDTQQKG----
sp|Q9HW02|MURC_PSEAE     IRQRGQLDPIYFERDADLAPLVKPLLRAGDILLCQGAGDVGGLAPQLIKNPLFAGKGGK
                         :*  *:::*::.    ::.  :  * * **:::  ***.:**:. :* ::.   *

tr|Q63QJ8                -
tr|Q62GS8                -
sp|Q9HW02|MURC_PSEAE     A
```

PileUp

MSF: 481 Type: P Check: 5274 ..

Name: tr|Q63QJ8 oo Len: 481 Check: 8421 Weight: 0.100
Name: tr|Q62GS8 oo Len: 481 Check: 8078 Weight: 0.100
Name: sp|Q9HW02|MURC_PSEAE oo Len: 481 Check: 8775 Weight: 0.100

//

```
tr|Q63QJ8                ..........  MKHIVKHIHF VGIGGAGMSG IAEVLVNLGY QVSGSDLARN
tr|Q62GS8                ..........  MKHIVKHIHF VGIGGAGMSG IAEVLVNLGY QVSGSDLARN
sp|Q9HW02|MURC_PSEAE     MVKEPNGVTR TMRRIRRIHF VGIGGAGMCG IAEVLLNLGY EVSGSDLKAS

tr|Q63QJ8                AVTERLEALG ARVSIGHDAA NIEGANAVVV STAVRSDNPE VLAARRLRVP
tr|Q62GS8                AVTERLEALG ARVSIGHDAA NIEGANAVVV STAVRSDNPE VLAARRLRVP
sp|Q9HW02|MURC_PSEAE     AVTERLEKFG AQIFIGHQAE NADGADVLVV SSAINRANPE VASALERRIP

tr|Q63QJ8                IVPRAVMLAE LMRLKQGIAI AGTHGKTTTT SLVASVLAAG GLDPTFVIGG
tr|Q62GS8                IVPRAVMLAE LMRLKQGIAI AGTHGKTTTT SLVASVLAAG GLDPTFVIGG
sp|Q9HW02|MURC_PSEAE     VVPRAEMLAE LMRYRHGIAV AGTHGKTTTT SLIASVFAAG GLDPTFVIGG

tr|Q63QJ8                RLTSAGANAR LGTGDFIVAE ADESDASFLN LYPVIEVITN IDADHMDTYG
tr|Q62GS8                RLTSAGANAR LGMGDFIVAE ADESDASFLN LYPVIEVITN IDADHMDTYG
sp|Q9HW02|MURC_PSEAE     RLNAAGTNAQ LGASRYLVAE ADESDASFLH LQPMVAVVTN IDADHMATYG

tr|Q63QJ8                HDFARLKQAF IEFTQRLPFY GSAVVCIDDA NVRQIVPLIS KPVVRYGFAA
tr|Q62GS8                HDFARLKQAF IEFTQRLPFY GSAVVCIDDA NVRQIVPLIS KPVVRYGFAA
sp|Q9HW02|MURC_PSEAE     GDFNKLKKTF VEFLHNLPFY GLAVMCVDDP VVREILPQIA RPTVTYGLSE

tr|Q63QJ8                DAQVRAENVE ARDGRMHFTV RREGREPLPV VLNLPGLHNV QNALAAIAIA
tr|Q62GS8                DAQVRAENVE ARDGRMHFTV RREGREPLPV VLNLPGLHNV QNALAAIAIA
sp|Q9HW02|MURC_PSEAE     DADVRAINIR QEGMRTWFTV LRPEREPLDV SVNMPGLHNV LNSLATIVIA

tr|Q63QJ8                TDLDVADAAI QQALAEFNGV GRRFQRYGEI AAAGGGAYTL IDDYGHHPVE
tr|Q62GS8                TDLDVADAAI QQALAEFNGV GRRFQRYGEI AAAGGGAYTL IDDYGHHPVE
sp|Q9HW02|MURC_PSEAE     TDEGISDEAI VQGLSGFQGV GRRFQVYGEL QVEGG.SVML VDDYGHHPRE

tr|Q63QJ8                MAATIAAARG AFPGRRLVLA FQPHRYTRTR DCFDDFVNVL STVDALVLTE
tr|Q62GS8                MAATIAAARG AFPGRRLVLA FQPHRYTRTR DCFDDFVNVL STVDALVLTE
sp|Q9HW02|MURC_PSEAE     VAAVIKAIRG GWPERRLVMV YQPHRYTRTR DLYEDFVQVL GEANVLLLME

tr|Q63QJ8                VYAAGEAPIS TANGDALSRA LRAAGKVEPV FVATVDEVPD ALAKLARDGD
tr|Q62GS8                VYAAGEAPIS TANGDALSRA LRAAGKVEPV FVATVDEVPD ALAKLARDGD
sp|Q9HW02|MURC_PSEAE     VYPAGEEPIP GADSRQLCHS IRQRGQLDPI YFERDADLAP LVKPLLRAGD

tr|Q63QJ8                VVITMGAGSI GGVPGKLAQD TQQKG..... .
```

```
tr|Q62GS8                VVITMGAGSI GGVPGKLAQD TQQKG..... .
sp|Q9HW02|MURC_PSEAE     ILLCQGAGDV GGLAPQLIKN PLFAGKGGKG A
```

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L1: Entry 1 of 1 File: USPT Apr 3, 2001

US-PAT-NO: 6211161
DOCUMENT-IDENTIFIER: US 6211161 B1

TITLE: UDP-N-acetylmuramoyl-l-alanine:D-glutamate ligase (MURD) of staphylococcus aureus

DATE-ISSUED: April 3, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Beattie; David T	Boston	MA		
Deresiewicz; Robert L	Boston	MA		
Lowe; Adrian M	Brighton	MA		
Nicholas; Richard O	Collegeville	PA		
Palmer; Leslie Marie	Audubon	PA		
Pratt; Julie M	Wigston			GB
Lonetto; Michael A	Collegeville	PA		
Hodgson; John E	Paris			FR

US-CL-CURRENT: 514/44; 435/252.3, 435/254.11, 435/320.1, 435/325, 435/455, 435/471, 435/69.1, 536/23.1, 536/23.2, 536/23.4, 536/23.7

CLAIMS:

What is claimed is:

1. An isolated polynucleotide comprising a first polynucleotide or the full complement of the entire length of the first polynucleotide, wherein the first polynucleotide comprises SEQ ID NO:1.

2. A vector comprising the isolated polynucleotide of claim 1.

3. An isolated host cell comprising the vector of claim 2.

4. A process for producing a polypeptide comprising the step of culturing the host cell of claim 3 under conditions sufficient for the production of the polypeptide, wherein the polypeptide is encoded by the first polynucleotide.

5. The isolated polynucleotide of claim 1 encoding a fusion polypeptide, wherein the fusion polypeptide comprises SEQ ID NO:2.

6. An isolated polynucleotide comprising a first polynucleotide or the full complement of the entire length of the first polynucleotide, wherein the first polynucleotide encodes the same mature polypeptide, expressed by the MurD gene

contained in Staphylococcus aureus WCUH 29 contained in NCIMB Deposit No. 40771.

7. The isolated polynucleotide of claim 6 encoding a fusion polypeptide, wherein the first polynucleotide encodes part of the fusion polypeptide.

8. An isolated polynucleotide comprising a first polynucleotide or the full complement of the entire length of the first polynucleotide, wherein the first polynucleotide encodes a polypeptide comprising the amino acid sequence set forth in SEQ ID NO:2.

9. A vector comprising the isolated polynucleotide of claim 8.

10. An isolated host cell comprising the vector of claim 9.

11. A process for producing a polypeptide comprising the step of culturing the host cell of claim 10 under conditions sufficient for the production of the polypeptide, wherein the polypeptide is encoded by the first polynucleotide.

12. The isolated polynucleotide of claim 8 encoding a fusion polypeptide, wherein the fusion polypeptide comprises SEQ ID NO:2.

13. An isolated polynucleotide comprising a first polynucleotide or the full complement of the entire length of the first polynucleotide, wherein the first polynucleotide encodes a polypeptide consisting of the amino acid sequence set forth in SEQ ID NO:2.

14. A vector comprising the isolated polynucleotide of claim 13.

15. An isolated host cell comprising the vector of claim 14.

16. A process for producing a polypeptide comprising the step of culturing the host cell of claim 15 under conditions sufficient for the production of the polypeptide, wherein the polypeptide is encoded by the first polynucleotide.

17. A method for producing antibodies in a mammal comprising: delivering to a tissue of the mammal a nucleic acid vector to direct expression in vivo of a polypeptide from an isolated polynucleotide of claim 8, wherein the polypeptide polypeptide is effective to induce an immunological response to the amino acid sequence of SEQ ID NO:2; and, wherein the polypeptide is expressed in vivo and induces an immunological response to produce antibodies to the amino acid sequence of SEQ ID NO:2.

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L1: Entry 1 of 1 File: USPT Apr 3, 2001

US-PAT-NO: 6211161
DOCUMENT-IDENTIFIER: US 6211161 B1

TITLE: UDP-N-acetylmuramoyl-l-alanine:D-glutamate ligase (MURD) of staphylococcus aureus

DATE-ISSUED: April 3, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Beattie; David T	Boston	MA		
Deresiewicz; Robert L	Boston	MA		
Lowe; Adrian M	Brighton	MA		
Nicholas; Richard O	Collegeville	PA		
Palmer; Leslie Marie	Audubon	PA		
Pratt; Julie M	Wigston			GB
Lonetto; Michael A	Collegeville	PA		
Hodgson; John E	Paris			FR

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Brigham & Women's Hospital	Boston	MA			02
Virus Research Institute	Cambridge	MA			02
SmithKline Beecham Corporation	Philadelphia	PA			02
SmithKline Beecham plc,				GB	03

APPL-NO: 09/ 147928 [PALM]
DATE FILED: March 19, 1999

PARENT-CASE:
RELATED APPLICATIONS This application claims benefit of U.S. Provisional Patent Application No. 60/061,064 filed Oct. 3, 1997.

PCT-DATA:

APPL-NO	DATE-FILED	PUB-NO	PUB-DATE	371-DATE	102(E)-DATE
PCT/US98/20773	October 2, 1998	WO99/17794	Apr 15, 1999	Mar 19, 1999	Mar 19, 1999

INT-CL: [07] A61 K 48/00, C07 H 21/00, C12 N 15/31, C12 N 15/52, C12 N 15/63

US-CL-ISSUED: 514/44; 435/69.1, 435/252.3, 435/254.11, 435/325, 435/320.1, 435/455, 435/471, 536/23.1, 536/23.2, 536/23.4, 536/23.7
US-CL-CURRENT: 514/44; 435/252.3, 435/254.11, 435/320.1, 435/325, 435/455, 435/471, 435/69.1, 536/23.1, 536/23.2, 536/23.4, 536/23.7

FIELD-OF-SEARCH: 435/69.1, 435/320.1, 435/252.3, 435/254.11, 435/325, 435/455, 435/471, 536/23.1, 536/23.2, 536/23.4, 536/23.7, 514/44

PRIOR-ART-DISCLOSED:

OTHER PUBLICATIONS

El-Sherbeini, et al., "Staphylococcus aureus UDP-N-acetylmuramoyl-L-alanine: D-glutamate ligase (murD) gene, complete cds", GenBank Submission, Accession No. AF009671, Jul. 23, 1997.
Mengin-Lecreulx, et al., "Nucleotide sequence of the murD gene encoding the UDP-MurNAc-L-Ala-D-Glu synthetase of Escherichia coli", Nucleic Acids Research, vol. 18, 18, No. 1, p. 183, Oxford University Press 1990.
El-Sherbeini, et al., "Cloning and expression of Staphylococcus aureus and Streptococcus pyogenes murD genes uridine diphosphate N-acetylmuramoyl-L-alanina:D-glutamate ligases", Gene, vol. 210, pp. 117-125, (1998).
Pucci, et al., "Staphylococcus aureus strain ATCC 8325-4 cell wall/cell division gene cluster, yllB, yllC, yllD, pbpA, murD, div1B, ftsA and ftsZ genes, complete cds.", GenBank Submission, Accession No. U94706, Jun. 3, 1997.
Pucci, et al., "Identification and Characterization of Cell Wall-Cell Division Gene Clusters in Pathogenic Gram-Positive Cocci", Journal of Bacteriology, vol. 179, No. 17, pp. 5632-5635, Sep. 1997.
Pucci, et al., Identification of bacterial UDP-N-acetyl muramyl-L-alaine: D-glutamate ligases. Abstracts of the 97.sup.th General Meeting of the American Society for Microbiology, May, 04-08, 1997, p. 360, abstract K-108.

ART-UNIT: 162

PRIMARY-EXAMINER: Priebe; Scott D.

ATTY-AGENT-FIRM: Gimmi; Edward R. Deibert; Thomas S. King; William T.

ABSTRACT:

The invention provides murD polypeptides and polynucleotides encoding murD polypeptides and methods for producing such polypeptides by recombinant techniques. Also provided are methods for utilizing murD polypeptides to screen for antibacterial compounds.

17 Claims, 0 Drawing figures

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L3: Entry 2 of 2 File: USPT Apr 6, 1999

DOCUMENT-IDENTIFIER: US 5891621 A
TITLE: Metabolic pathway assay

Detailed Description Text (45):
In one embodiment of the present invention, the known gene sequences for murC, murD, murE and murF are used to synthesize their enzyme products: UDP-N-acetylmuramoyl: L-alanine ligase; UDP-N-acetylmuramoyl- L-alanine: D-glutamate ligase; UDP-N-acetylmuramoyl-L-alanyl-D-glutamate: meso-2,6-diaminopimelate ligase; and UDP-N-acetylmuramoyl- L-alanyl-D-glutamyl-meso-2,6-diaminopimoyl-D-alanine-D-alanine synthase, respectively. The genes are cloned by PCR and expressed using a modified commercially available GST or MBP fusion expression vector, such as pGEX-KT or pMal-C. The expression vector modification with respect to MBP fusions is detailed in Reference Example 3. The GST-fusion expression vectors are referenced under Hakes, D. J. and Dixon, J. E. "New Vectors for High Level Expression of Recombinant Proteins in Bacteria" 202 Analytical Biochemistry 293-298 (1992). The protein expression is detailed in Reference Example 5. The expressed enzymes are purified by affinity chromatography specific to the fusion protein used in the expression or any other suitable purification method. For example, GST fusions bind to glutathione agarose columns eluted with glutathione. MBP fusions bind to amylose columns eluted with maltose. The enzyme is cleaved from the purified fusion protein by incubating with thrombin. The contaminating GST or MBP can be removed by passage of the thrombin cleavage reaction mixture through the glutathione or amylose column one more time. The free enzyme passes through without binding to the column, while the GST or MBP will specifically stick to the column. The purification of the enzyme products of murC, murD, murE and murF is detailed in Reference Examples 6-9. In one embodiment of the present invention, the free mur enzymes are used for pathway assay. In another embodiment of the present invention, GST or MBP fusions of the mur enzymes are used for pathway assay. In an embodiment of the invention, MBP fusions are utilized.

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L4: Entry 1 of 15 File: USPT Jan 4, 2005

US-PAT-NO: 6838255
DOCUMENT-IDENTIFIER: US 6838255 B1

TITLE: MurC

DATE-ISSUED: January 4, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Burnham; Martin Karl Russell	Norristown	PA		
Wallis; Nicola Gail	Wayne	PA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
SmithKline Beecham Corporation	Philadelphia	PA			02
SmithKline Beecham plc	Brentford			GB	03

APPL-NO: 09/ 103287 [PALM]
DATE FILED: June 23, 1998

PARENT-CASE:
RELATED APPLICATIONS This application claims benefit to U.S. Provisional Patent Application No. 60/052,720, filed Jul. 3, 1997.

INT-CL: [07] C12 P 21/02

US-CL-ISSUED: 435/69.1; 435/320.1, 435/252.3, 435/252.33, 536/23.7
US-CL-CURRENT: 435/69.1; 435/252.3, 435/252.33, 435/320.1, 536/23.7

FIELD-OF-SEARCH: 536/23.7, 536/23.4, 435/6, 435/455, 435/325, 435/252.3-257.35, 435/320.1, 435/69.1, 435/64.1

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL | Clear

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	6593114	July 2003	Kunsch et al.	435/91.41
☐	6737248	May 2004	Kunsch et al.	435/69.1

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0786519	July 1997	EP	

OTHER PUBLICATIONS

Varon, et al, Mol. Microbiol. 20: 339 (1996).*
Critical Synergy: The Biotechnology Industry and Intellectual Property Protection, Biotechnology Industry Organization, Washington, D.C., 1994, pp. 75 and 100-107.*
Genbank Submission, Accession No. AF034076, Direct Submission.
Swissprot Submission, Accession No. 030211, Direct Submission.

ART-UNIT: 1631

PRIMARY-EXAMINER: Martinell; James

ATTY-AGENT-FIRM: Fedon; Jason C. Gimmi; Edward R.

ABSTRACT:

The invention provides MurC polypeptides and polynucleotides encoding MurC polypeptides and methods for producing such polypeptides by recombinant techniques. Also provided are methods for utilizing MurC polypeptides to screen for antibacterial compounds.

14 Claims, 0 Drawing figures

First Hit Fwd Refs

L4: Entry 1 of 15 File: USPT Jan 4, 2005

US-PAT-NO: 6838255
DOCUMENT-IDENTIFIER: US 6838255 B1

TITLE: MurC

DATE-ISSUED: January 4, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Burnham; Martin Karl Russell	Norristown	PA		
Wallis; Nicola Gail	Wayne	PA		

US-CL-CURRENT: 435/69.1; 435/252.3, 435/252.33, 435/320.1, 536/23.7

CLAIMS:

What is claimed is:

1. An isolated polynucleotide segment comprising a first polynucleotide sequence or the full complement of the entire length of the first polynucleotide sequence, wherein the first polynucleotide sequence encodes a polypeptide comprising the amino acid sequence of SEQ ID NO: 2.

2. A vector comprising the isolated polynucleotide segment of claim 1.

3. An isolated host cell comprising the vector of claim 2.

4. A process for producing a polypeptide comprising the step of culturing the host cell of claim 3 under conditions sufficient for the production of the polypeptide, wherein the polypeptide is encoded by the first polynucleotide sequence.

5. The isolated polynucleotide of claim 1 encoding a fusion polypeptide, wherein the first polynucleotide sequence encodes part of the fusion polypeptide.

6. An isolated polynucleotide segment comprising a first polynucleotide sequence or the full complement of the entire length of the first polynucleotide sequence, wherein the first polynucleotide sequence encodes a polypeptide consisting of the amino acid sequence of SEQ ID NO:2.

7. A vector comprising the isolated polynucleotide segment of claim 6.

8. An isolated host cell comprising the vector of claim 7.

9. A process for producing a polypeptide comprising the step of culturing the host cell of claim 8 under conditions sufficient for the production of the polypeptide, wherein the polypeptide is encoded by the first polynucleotide

sequence.

10. An isolated polynucleotide segment comprising a first polynucleotide sequence or the full complement of the entire length of the first polynucleotide sequence wherein the first polynucleotide sequence comprises SEQ SEQ ID NO:1.

11. A vector comprising the isolated polynucleotide segment of claim 10.

12. An isolated host cell comprising the vector of claim 11.

13. A process for producing a polypeptide comprising the step of culturing the host cell of claim 12, under conditions sufficient for the production of the polypeptide, wherein the polypeptide is encoded by the first polynucleotide sequence.

14. The isolated polynucleotide of claim 10 encoding a fusion polypeptide, wherein the first polynucleotide sequence encodes part of the fusion polypeptide.